



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,221	11/27/2003	Jing-Horng Gau	NAUP0550USA	1220
27765	7590	09/22/2004	EXAMINER	
NAIPO (NORTH AMERICA INTERNATIONAL PATENT OFFICE)			FENTY, JESSE A	
P.O. BOX 506			ART UNIT	PAPER NUMBER
MERRIFIELD, VA 22116			2815	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/707,221	Applicant(s) GAU ET AL.	
	Examiner Jesse A. Fenty	Art Unit 2815	<i>AW</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-10 and 13 is/are rejected.
- 7) ☒ Claim(s) 2-4, 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5, 7-9, 10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Ker et al. (U.S. Patent No. 6,576,958 B2).

In re claims 1, 8 and 9, Ker (Fig. 7) discloses a semiconductor device, comprising:

A first N-well (20) formed on a semiconductor substrate;

A first gate (50, on left side of substrate) situated over said first N-well;

A first gate dielectric layer (13) provided between said first gate and said first N-well;

A second gate (50, on right side of substrate) situated at one side of said first gate and overlying said first N-well;

A second gate dielectric layer (13) provided between said second gate and said first N-well;

A P+ doping region (44a) located in said first N-well between said first gate and said second gate, and serving as an anode of the semiconductor device;

A first N+ doping region (46, on left side of substrate) located at one side of said first gate that is opposite to said P+ doping region within said first N-well; and

Art Unit: 2815

A second N+ doping region (46, on right side of substrate) located at one side of said second gate that is opposite to said P+ doping region within said first N-well, and said second N+ doping region being electrically coupled to said first N+ doping region for serving as a cathode of said semiconductor device.

In re claims 5 and 13, Ker discloses the devices of claims 1 and 8 respectively, wherein spacers are provided on sidewalls of said first and said second gate.

In re claims 7 and 10, Ker discloses the devices of claims 1 and 8 respectively, wherein the first and second gates are grounded.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ker as applied to claim 1, and further in view of Takamura (US 2004/0026750 A1).

In re claim 6, Ker discloses the device of claim 1, but does not expressly disclose silicide regions atop the gate and impurity doped regions. Takamura discloses silicide regions atop the gates and doped regions of the disclosed device. It would have been obvious for one skilled in the art at the time of the invention to form silicide regions as disclosed by Takamura on the device of Ker for the purpose, for example, of speeding up the conductivity of the affected regions.

Art Unit: 2815

***Allowable Subject Matter***

7. Claims 2-4, 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In re claims 3, 4 and 12, while N-LDD regions are not novel, to combine a prior art N-LDD teaching with the disclosure of Ker would not work to obviate the claim, because the N+ cathode regions of Ker are not directly adjacent the gate regions.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse A. Fenty whose telephone number is 571-272-1729. The examiner can normally be reached on 5/4-9 1st Fri. Off.

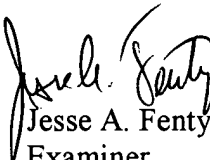
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/707,221

Page 5

Art Unit: 2815

  
Jesse A. Fenty  
Examiner  
Art Unit 2815